DOI: *10.18195/issn.0312-3162.24(4).2008.337-342*
Records of the Western Australian Museum **24**: 337–342 (2008).

A new species of *Xestaspis* (Araneae: Oonopidae) from the Pilbara region of Western Australia

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Abstract – A new species of the spider genus *Xestaspis*, *X. limnaei*, is described from the arid Pilbara region of north-western Western Australia. It represents the first named species from Australia.

INTRODUCTION

Oonopid spiders are virtually cosmopolitan in distribution (Jocqué and Dippenaar-Schoeman 2006), with nearly 500 described species in 73 genera (Platnick 2008). They are small spiders, usually less than 4 mm in length and generally occur in habitats close to the ground, such as leaf litter and soil. The named Australian fauna is remarkably small but numerous undescribed species have been collected and await description.

The genus *Xestaspis* was proposed by Simon (1884) and currently includes ten species from different parts of the world: *X. loricata* (L. Koch 1873) from Fiji; *X. nitida* Simon 1884, *X. parumpunctata* Simon 1893, *X. recurva* Strand 1906, *X. sertata* Simon 1907 and *X. tumidula* Simon, 1893 from Africa; *X. sublaevis* Simon 1893, from Sri Lanka; *X. reimoseri* Fage 1938 from Costa Rica; *X. sis* Saaristo and van Harten, 2006 and *X. yemeni* Saaristo and van Harten, 2006 from Yemen (Platnick 2008). The genus is, however, much more extensive with numerous undescribed species particularly from the Australasian region (Ott, unpublished data). As part of a large-scale review of the genus associated with a global review of the family Oonopidae (see http://research.amnh.org/oonopidae/), we here describe a new species of *Xestaspis* from the arid-zone of Western Australia.

The specimens examined for this study are lodged in the Western Australian Museum, Perth (WAM). The descriptions follow the main protocol adopted by the PBI Oonopidae (http://research.amnh.org/oonopidae). The specimens were examined with a Leica MZ16A microscope, and digital images were composed using the software program AutoMontage Pro Version 5.02 (p) utilizing multiple images taken with a Leica DFC 500 digital camera attached to the Leica microscope. Male pedipalps and female genitalia were cleared after immersion in clove oil for at least 24 h and examined with an Olympus BH-2 compound microscope and illustrated with the use of a drawing tube. The female ventral scuta and genitalia were submitted to additional examination after immersion in glycerol with 10% lactic acid at room temperature for at least one week.

The following abbreviations were used in the manuscript: ALE, anterior lateral eyes; PLE, posterior lateral eyes; PME, posterior median eyes.

Family Oonopidae Simon 1890

Genus *Xestaspis* Simon 1884

Xestaspis Simon 1884: 324.

Type species

Oonops loricatus L. Koch 1873 by original designation.

Diagnosis

Species of *Xestaspis* most closely resemble those of *Gamasomorpha*, from which they differ by the modified anterodorsal edge of the booklung covers, which bears a remarkable pointed tubercle. In addition, the body is heavily sclerotized, the carapace moderately high, with six well-developed eyes, the endites lack any conspicuous modifications, with a complete set of abdominal scuta, and legs without obvious spines.

Xestaspis limnaei sp. nov.

Figures 1–4

Material examined

Holotype

Australia: ***Western Australia:*** ♂, Pilbara region: 23 km NE. of Warrawagine Homestead, survey

site PHYE01, 1 July 2005–21 August 2006 (WAM T80495; PBI-OON 00004225).

Paratypes

Australia: ***Western Australia*:** Pilbara: 1 ♀, collected with holotype (WAM T83175; PBI-OON 00005473); 1 ♂, 27 km NE. of Warrawagine Homestead, survey site PHYE02, 1 July 2005–21 August 2006 (WAM T80494; PBI-OON 00004230).

Diagnosis

Xestaspis linnaei is a medium-sized oonopid (total body length 2.2–2.4 mm) with red-brown body and an ovoid abdomen. The species can be identified by the male pedipalpal conductor with small denticles situated anterodorsally; by the shape of the female internal genitalia, with a bell-shaped receptaculum with a short dorsal glandular duct. It differs from all other previously described species by the epigastric scutum

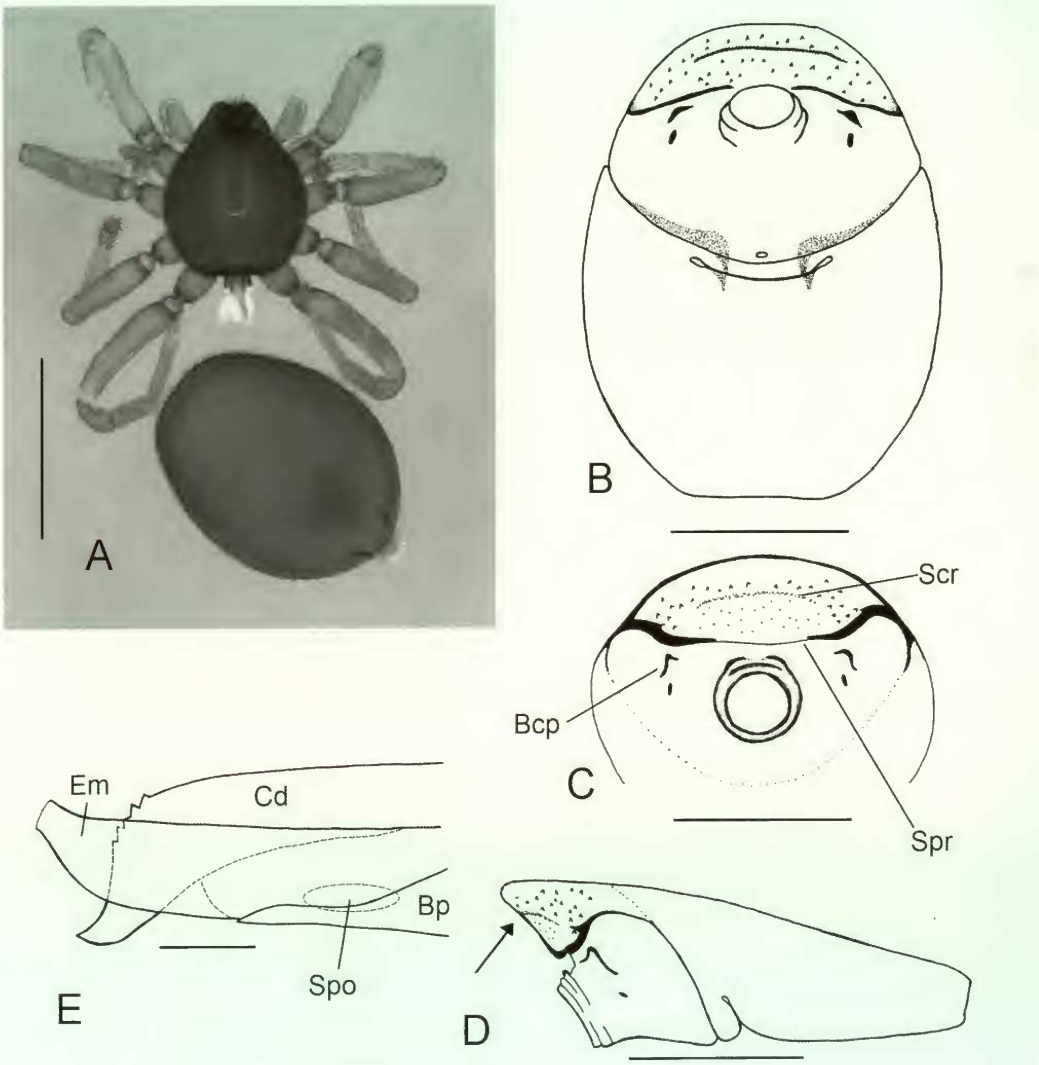

Figure 1 *Xestaspis linnaei* sp. nov., male: A, body, dorsal view. B–D, abdominal ventral scutum: B, ventral view; C, frontal view; D, lateral view. E, distal region of embolus, retrolateral view. Scale lines: A, 1.0 mm; B–D, 0.5 mm; E, 0.25 mm; F, 0.025mm. Abbreviations: Bp, embolic set basal portion; Bcp, booklung covers, anterodorsal process; Cd, conductor; Em, embolus; Spo, spermatic opening; Spr, supra-pedicellar scutal ridge; Scr, semicircular ventral-arched ridge (arrows).

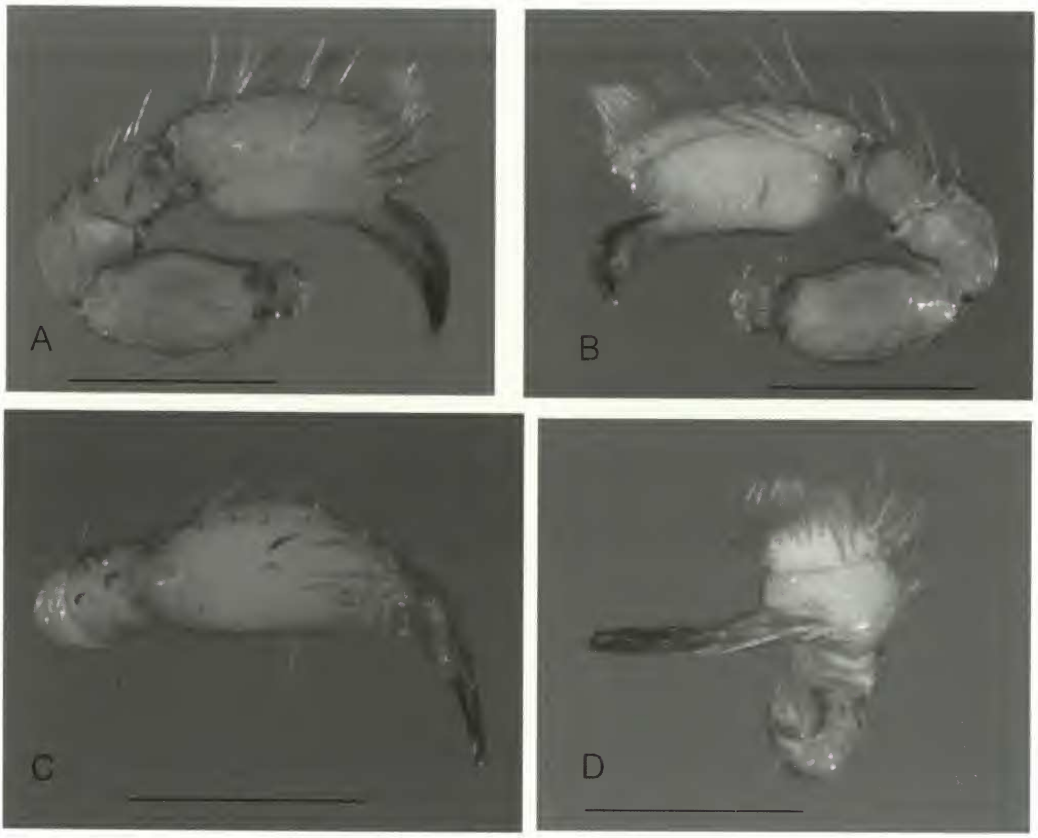

Figure 2 *Xestaspis linnaei* sp. nov., male, right palp: A, prolateral view; B, retrolateral view; C, dorsal view; D, frontal view. Scales: 0.25 mm.

projecting far anteriad of the pedicel (almost twice the size of the pedicel diameter) with a conspicuous semicircular ventral-arched ridge between the supra-pedicellar scutal ridge and the dorsal end of the epigastric scutum (Figures 1B–D, 3B–D; arrows).

Description

Male holotype

Carapace: dark red-brown, pars thoracica granulate; clypeus high, ALE separated from edge of carapace by their radius or more. Eyes: PME circular; eye interdistances: ALE-ALE separated by ALE radius to ALE diameter, ALE-PLE separated by less than ALE radius, PME-PME touching for less than half their length, PLE-PME separated by less than PME radius.

Sternum: orange-brown; posterior border quadrate and truncated.

Mouthparts: chelicerae, endites and labium orange-brown; chelicerae paturon inner margin slightly concave with a brush of short thorn-like setae.

Abdomen: rounded; booklung cover with antero-dorsal process positioned as far from the pedicel as from the epigastric scutum lateral border (Figures 1B, 1C); abdominal setae serrate.

Abdominal scuta: orange-brown, surface with large setal bases; antero-superior border of the epigastric scutum, which extends far dorsal of the pedicel, almost twice the diameter of the pedicel (Figures 1C, 1D); scuto-pedicel region with straight scutal ridge forming a fold over anterior edge of booklungs (Figure 1D); conspicuous ventral-arched ridge between the main scutal ridge and anterodorsal end of epigastric scutum (Figure 1D); antero-dorsal post-epigastric scutum rounded (Figure 1B).

Legs: pale-orange.

Male genitalia: palpal bulb shorter than cymbium; lamellar embolus with straight and dorsally directed tip and sub-terminal and retrolateral

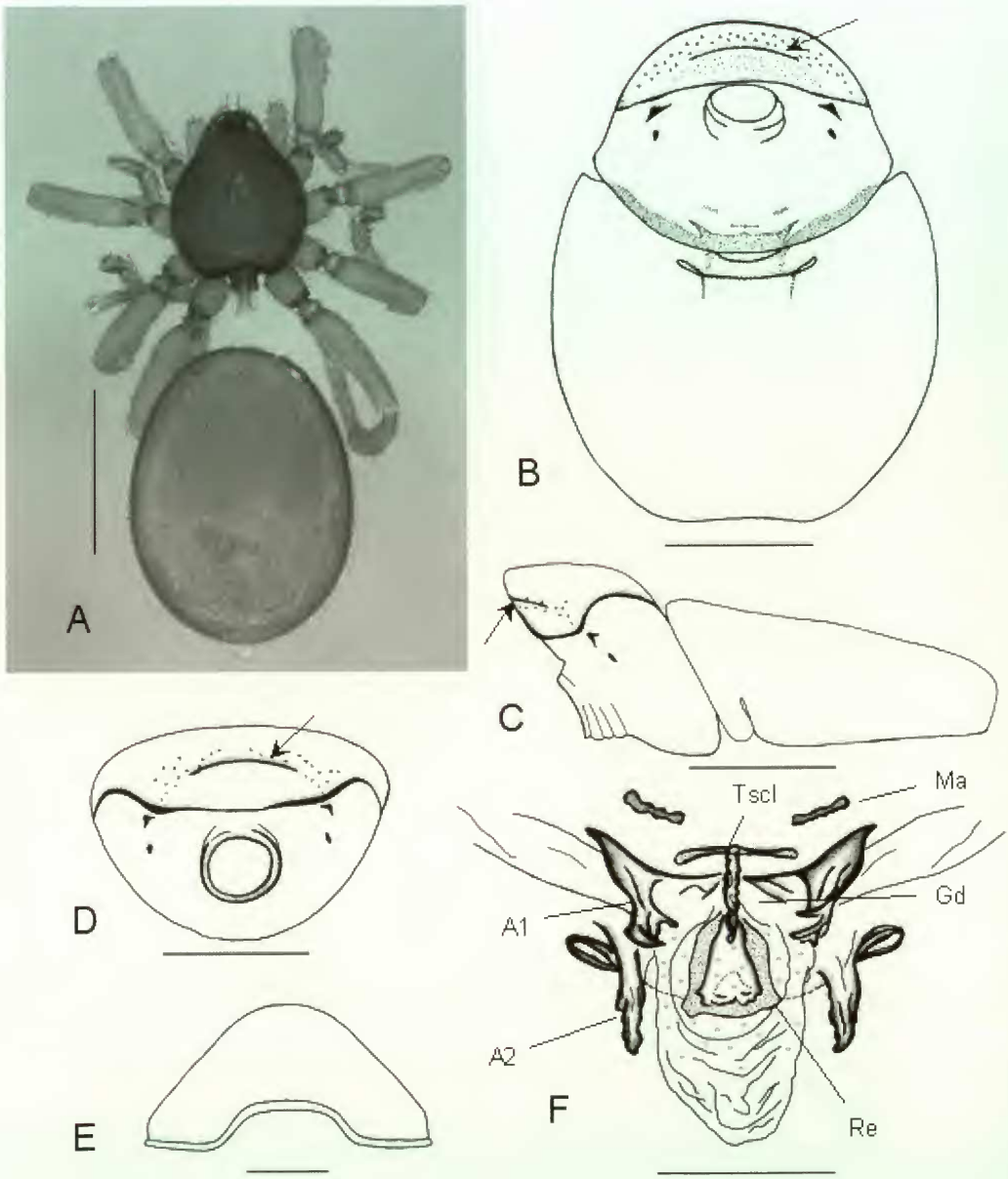

Figure 3 *Xestaspis linnaei* sp. nov., female paratype: A, body, dorsal view; B–D, abdominal ventral scutum; B, ventral view; C, lateral view; D, frontal view; E, carapace, posterior view; F, genitalia, dorsal view. Scale lines: A, 1.0 mm; B–D, 0.5 mm; E, F, 0.25 mm. Abbreviations: A1, anterior apodeme; A2, posterior tracheal opening apodeme; Ma, epigastric scutum genital area muscle attachment sclerites; TScI, T-sclerite; Gd, glandular duct; Re, receptaculum; arrows, semicircular ventral-arched ridge.

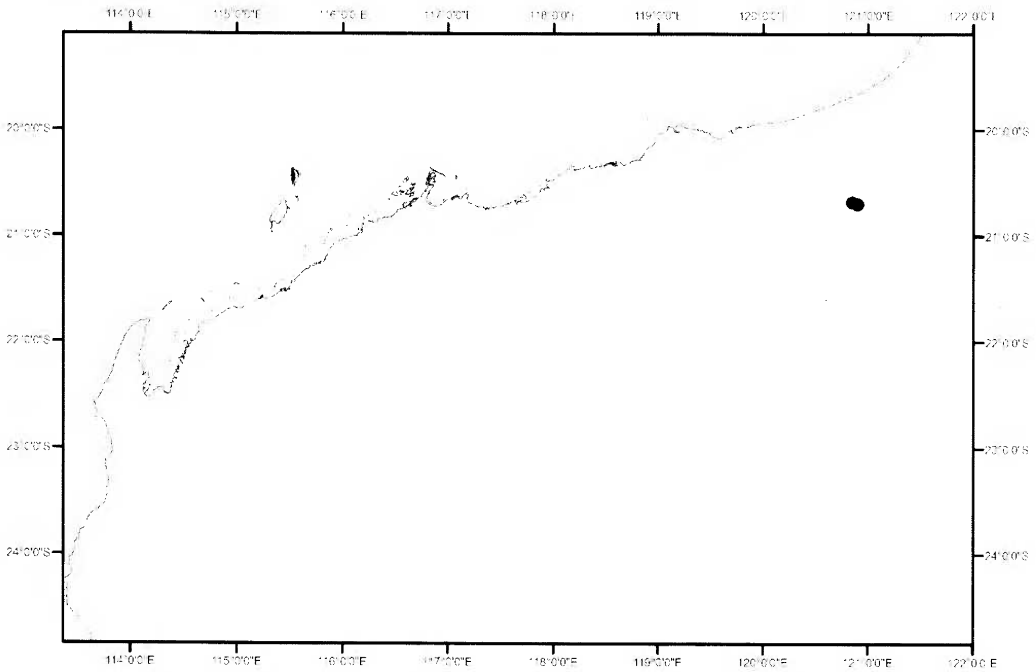

Figure 4 Distribution records of *Xestaspis linnaei* sp. nov (●).

sperm duct opening; conductor shorter than embolus, with small denticles at anterodorsal end, and a retrolaterally curved ventral tip (Figures 1E, 2A–D).

Dimensions (mm): Total body length 2.23. Carapace length 0.99, width 0.82, height 0.36, carapace width (near posterior eye row) 0.38. Eye group length 0.19, width 0.34. Clypeus height 0.06. Chelicera length 0.36. Sternum length 0.61, width 0.48. Dorsal scutum length 1.53, width 1.16. Post-epigastric scutum length (from epigastric furrow to posterior border of ventral scutum) 0.65, width 1.03. Leg I: femur 0.59, patella 0.32, tibia 0.38, metatarsus 0.38, tarsus 0.23. Leg II: femur 0.57, patella 0.32, tibia 0.38, metatarsus 0.38, tarsus 0.23. Leg III: femur 0.53, patella 0.29, tibia 0.34, metatarsus 0.36, tarsus 0.21. Leg IV: femur 0.73, patella 0.40, tibia 0.53, metatarsus 0.50, tarsus 0.27.

Female paratype

As for male, except as follows:

Mouthparts: Cheliceral paturon inner margin with inter-digitating setae not forming a conspicuous brush.

Abdominal scuta: scutal ridge fold over the booklungs less conspicuous than in male (Figure 3C).

Female palp: Female tarsus slightly swollen distally with a dorsal patch of plumose setae.

Female genitalia: Receptaculum well delimited, bell-shaped, reaching to the posterior tracheal spiracle groove; short dorsal glandular duct attached to anterior portion of receptaculum and extending half way between epigastric furrow and posterior tracheal spiracle grove (Figure 3F). Large well delimited anterior T-shaped sclerite present. Anterior apodemes large, well sclerotized, slightly convergent posteriorly; posterior tracheal opening apodemes large, straight longitudinally, well sclerotized (Figure 3F).

Dimensions (mm): total body length 2.38. Carapace length 1.05, width 0.88, height 0.40, carapace width (near posterior eye row) 0.40. Eye group length 0.19, width 0.34. Clypeus 0.08. Chelicera length 0.38. Sternum length 0.55, width 0.44. Dorsal scutum length 1.81, width 1.43. Post-epigastric scutum length (from epigastric furrow to posterior border of ventral scutum) 0.86, width 1.34. Leg I: femur 0.69, patella 0.36, tibia 0.46, metatarsus 0.42, tarsus 0.23. Leg II: femur 0.67, patella 0.38, tibia 0.48, metatarsus 0.42, 0.23. Leg III: femur 0.63, patella 0.34, tibia 0.40, metatarsus 0.40, tarsus 0.22. Leg IV: femur 0.82, patella 0.46, tibia 0.59, metatarsus 0.55, tarsus 0.32.

Remarks

Xestaspis linnaei is assigned to the genus *Xestaspis* due to the presence of a strong dorso-anterior process on the booklung covers (Figures 1B–D, 3B–D). This species is only known from the Pilbara region of Western Australia (Figure 4) where the only known specimens were collected using pitfall traps.

Etymology

This species is named for Carolus Linnaeus (1707–1778), founder of the binomial system of taxonomic nomenclature.

ACKNOWLEDGEMENTS

The background work to this project was supported by a grant to M. Harvey by the Australian Biological Resources Study, and is currently supported by the Planetary Biodiversity Inventory project "The Megadiverse, Microdistributed Spider Family Oonopidae" funded by the National Science Foundation provided through grant DEB-0613754. We thank Dr Norman I. Platnick for his support. The specimens were kindly provided by Brad Durrant and Nadine Guthrie, and were collected as part of the Pilbara Biological Survey conducted by the Department of Environment and Conservation. We also thank Julianne Waldock for her assistance and Dr Barbara Baehr and Dr Volker Framenau for their helpful comments on manuscript.

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Manuscript received 25 March 2008; accepted 14 July 2008.